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TI Dichotomy between the T and the B cell epitopes of the synthetic polypeptide (T,G)-A--L
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AB Studies with the well-characterized, synthetic, random-multichain polypeptide poly(LTyr,LGlu)-poly(DLAla)--poly(LLys) ((T,G)-A--L), led to the discovery of determinant-specific genetic control of the immune response, as well as to other immunol. phenomena. Moreover, the tetrapeptide TyrTyrGluGlu built on the same backbone ("(T-T-G-G)-A--L") was found to represent its major B cell epitope. We have recently shown that for interaction with major **histocompatibility** complex class II mols. and stimulation of T cells, (T,G)-A--L requires proteolytic processing and the resulting T cell epitopes are close to the N termini of the branched polymer's side chains. Thus, the authors were interested to elucidate the major T cell epitope of (T,G)-A--L, by using the ordered polypeptides (T-G-G-G)-A--L and (T-G-T-G)-A--L, in which only the two internal amino acids of the tetrapeptide attached to the side chains are switched. The authors established T cell lines to these antigens, and found that the ordered analog (T-T-G-G)-A--L, which was defined as the B cell epitope of (T,G)-A--L, did not represent its T cell epitope, whereas (T-G-T-G)-A--L, to which only a minor anti-(T,G)-A--L Ab response was directed, was found to be its major T cell epitope. In addn., there was no cross-reaction between (T-G-T-G)-A--L and (T-T-G-G)-A--L at the T cell level, similar to the lack of cross-reaction of their antibodies. Anal. of the repertoire of the T cell receptors used by these lines revealed that the (T,G)-A--L and the (T-T-G-G)-A--L specific T cell lines were not restricted in their V.alpha. and V.beta. TCR usage, whereas the (T-G-T-G)-A--L-specific line was restricted by both V.alpha. and V.beta. T cell receptor gene products. This difference might be due to the thymus-independent characteristics previously described for the latter antigen.